

# TOSHIBA

TOSHIBA INTERNATIONAL CORPORATION

ADJUSTABLE SPEED DRIVES

## AS3 - UL Type 12/IP55



**LOW  
VOLTAGE**

# INCREASED PROTECTION FOR HARSH ENVIRONMENTS

Toshiba's AS3 UL Type 12/IP55 adjustable speed drive is designed to withstand harsh environments and features built-in communications, allowing end-users to access real-time data and refined controls to maximize system performance.



Increased Protection	Protects from falling water, splashing water, dust, dirt, lint and fibers to operate in the harshest of environments.
Industry 4.0/IoT (Internet of Things)	Industry 4.0 is the evolution of manufacturing, empowering businesses to learn and adjust from data available through connected manufacturing.
Dual Port Ethernet IP	Enables simple connection of multiple AS3s together on one network while simplifying cable management.
Embedded Web Server	Allows for quick access to Ethernet IP setup, parameters and real-time monitoring for diagnostics. Accessible through standard web browsers on PC, tablets, and smart phones.
Built-in LCD Display & Advanced Keypad	Multi-language LCD display, remote mounting, IP65 rated, transfer/save parameters, real-time clock for fault logging, and calendar functionality.
QR Codes	Displayed when troubleshooting faults or alarms, providing immediate access to a dedicated web link for maintenance and support.
STO Terminal	Detachable terminal strip meets IEC directives for safety with full implementation of Safe Torque Off, which quickly shuts down the system in the event of an emergency stop.
Permanent Magnet Motor Control	For control of permanent magnet (PM) motors with higher torque and efficiency values.
Pump Control	Multi-PID control with sleep function and the ability to autonomously control booster pumps based on system demands or operating a secondary PID control loop.
ASD Pro Software	Toshiba's programming software, which allows the user to utilize logic-type programming without the expense of a micro PLC.

## COMMUNICATION OPTIONS

In addition to the built-in dual port Ethernet, the AS3 can make use of a wide array of easily installed option boards. These boards allow the user to communicate with a wide variety of systems when installed cassette style. Options include:

- Ethernet/IP (Embedded)
- Modbus TCP (Embedded)
- Modbus RTU (Embedded)
- PROFINET
- EtherCAT
- PROFIBUS-DP
- DeviceNET
- CAN open

## ADDITIONAL OPTIONS

The AS3 can be supplied with additional options to expand control, allow greater flexibility, and provide better protection for a user's application. Options include:

- AC Line Reactors
- DV/DT Long-Lead Filters
- Extended Terminal Cards
- Encoder Feedback Cards
- Harmonic Filters
- Remote-Mountable Keypads
- Dynamic Braking Resistor
- Safety Module (SS1, SOS, SS1, SBS, SLS, SDI)

## OTHER SPECIAL FEATURES

- Broad Range of Compliances
- NEC 2005 Motor Overload Retention (No External Motor Overloads Required)
- UL Listed & Labeled



1. Dual Port Ethernet IP
2. RS485 Communication Port
3. Up to 3 Embedded Option Card Slots
4. Safe Torque Off Terminals
5. 3 Digital Output Relays
6. 3 Analog Inputs
7. 2 Analog Outputs
8. 8 Digital Inputs

### INDUSTRIES SERVED

- Oil & Gas
- Mining & Minerals
- Chemical
- Water & Wastewater

### APPLICATIONS

- Pumps
- Fans
- Compressors
- Centrifuges
- Conveyors
- Mixers
- Pump Jacks
- Crushers
- Cranes
- Hoists





APPLICABLE MOTOR (HP)																
Heavy Duty (HD)	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
Normal Duty (ND)	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
RATED OUTPUT CURRENT (A)																
400 V Class HD	1.5	2.2	4	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88	106	145
400 V Class ND	2.2	4	5.6	9.3	12.7	16.5	23.5	31.7	39.2	46.3	61.5	74.5	88	106	145	173
VOLTAGE/FREQUENCY																
400 V Class	Three-Phase 380 to 480 V, 50/60 Hz (Voltage +10%, -15%, Frequency ±5%)															
OUTPUT VOLTAGE																
400 V Class	Three-Phase 380 to 480 V (Maximum Output Voltage is Equal to the Input Supply Voltage)															
OVERLOAD CURRENT RATING																
HD	150% for One Minute, 180% for Two Seconds															
ND	120% for One Minute, 135% for Two Seconds															
OUTPUT FREQUENCY RANGE																
	Setting Between 0.01 to 590 Hz; Adjustable at 0.01 Hz Increments; Default Maximum Frequency is Set to 0.01 to 80 Hz; Maximum Frequency Adjustment (30 to 590 Hz)															
DC REACTOR																
	400 V Class 0.5 to 100 HP (HD) Built-in															
ENCLOSURE																
	400 V Class 0.5 to 100 HP (HD) UL Type 12/IP55 Built-in															
AMBIENT TEMPERATURE																
	-15° to 50° C															
TERMINAL STRIP I/O																
	Eight DI, Three DO (One Form C, Two Form A Relays), Three AI (0 to 10 VDC, -10 to +10 VDC, 0 to 20 mADC), Two AO (0 to 10 VDC or 0 to 20 mADC), STO (Safe Torque Off)															
400 V CLASS WEIGHTS & DIMENSIONS																
HD	0.5	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
ND	1	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
Frame Size	A1E					A2E			A3E			A4E			A5E	
Dims. (in.) WxHxD	9.9 x 30.1 x 10.7					9.9 x 30.1 x 11.9			9.9 x 30.9 x 11.9			12.1 x 45.0 x 13.4			14.3 x 54.7 x 14.9	
Approx. Weight (lbs.)	28					36			46			111			197	

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**TOSHIBA MOTORS & DRIVES DIVISION**  
Adjustable Speed Drives • Motors • Motor Controls

[www.toshiba.com/tic](http://www.toshiba.com/tic)



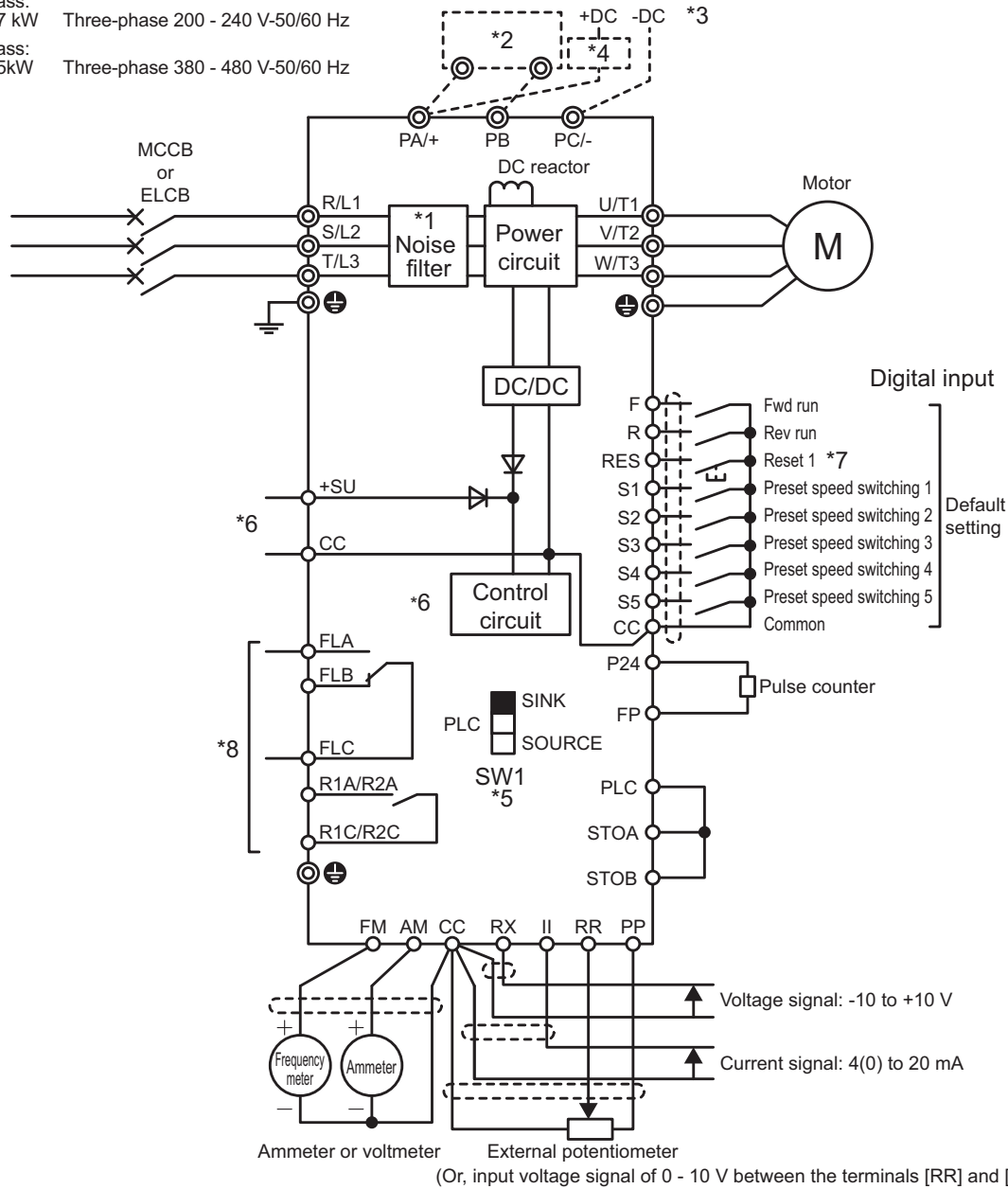
Scan here to learn more about the AS3

[Standard connection diagram - Sink]

This diagram shows an example of a standard connection for 240 V class, 0.4 to 37kW and 480 V class, 0.4 to 75kW (frame size A1 to A5).

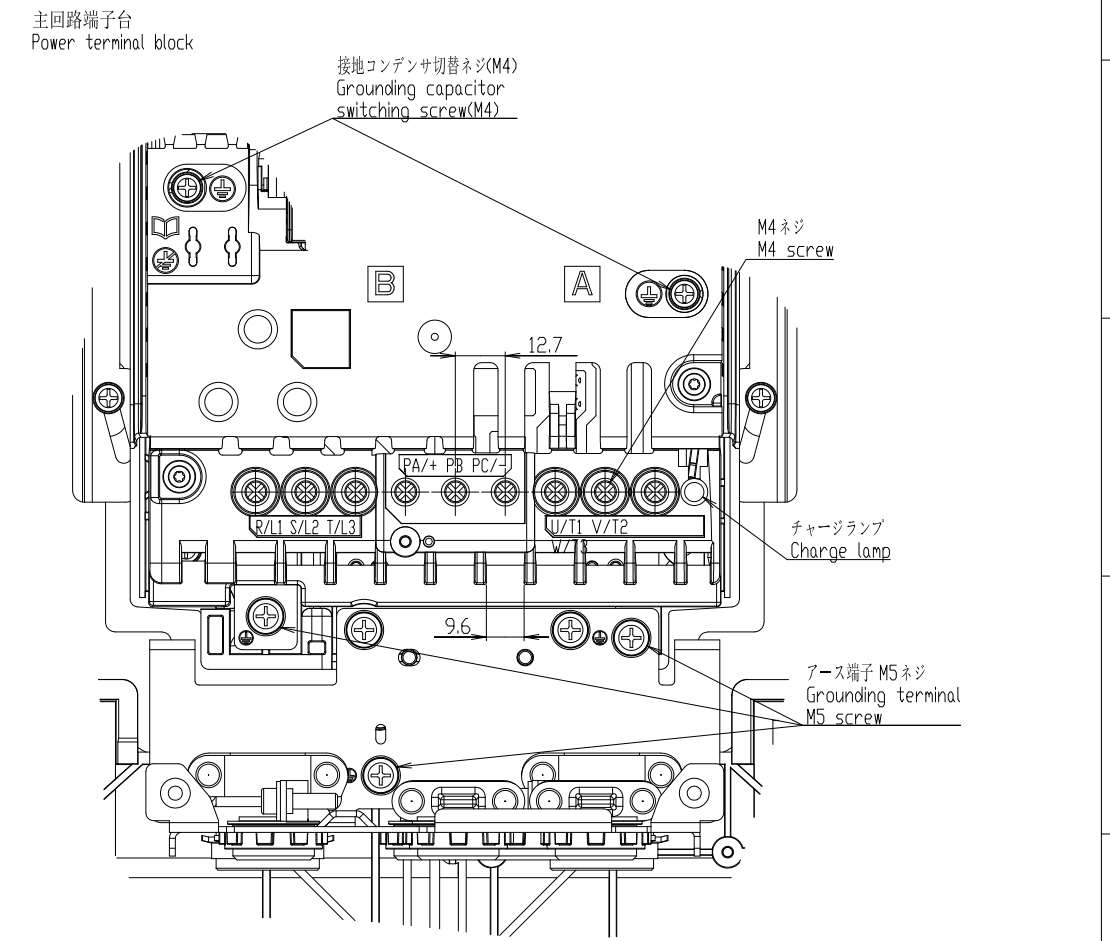
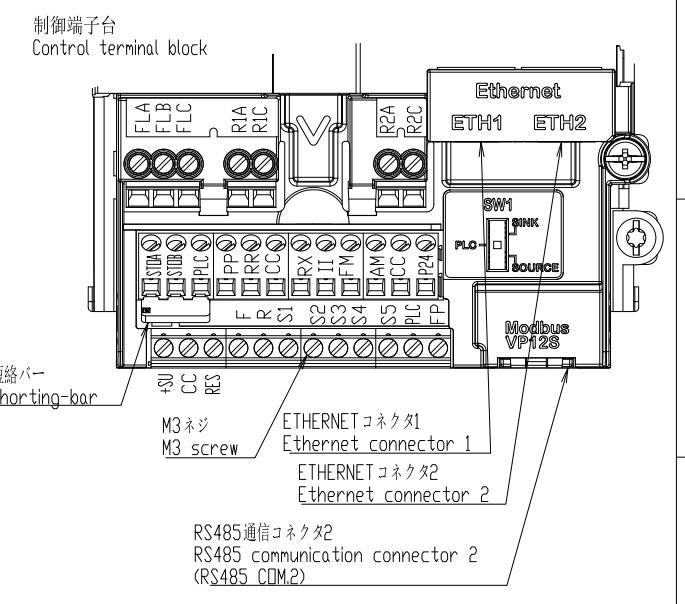
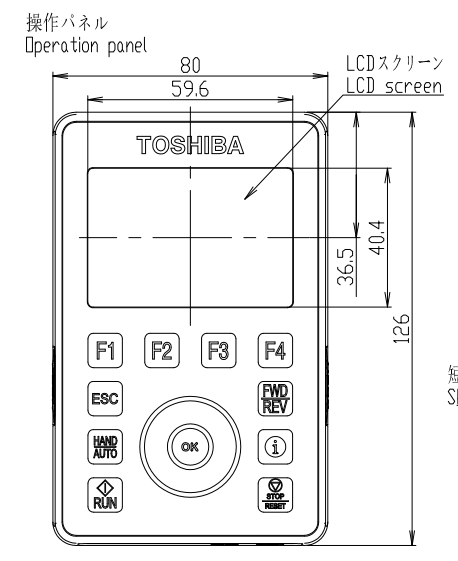
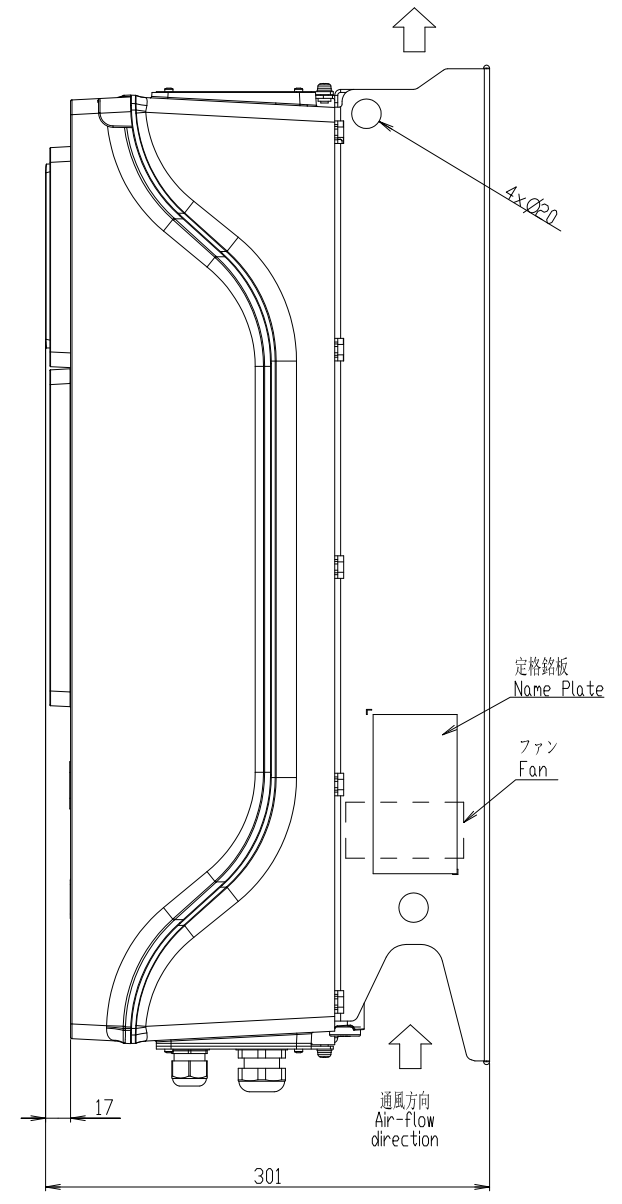
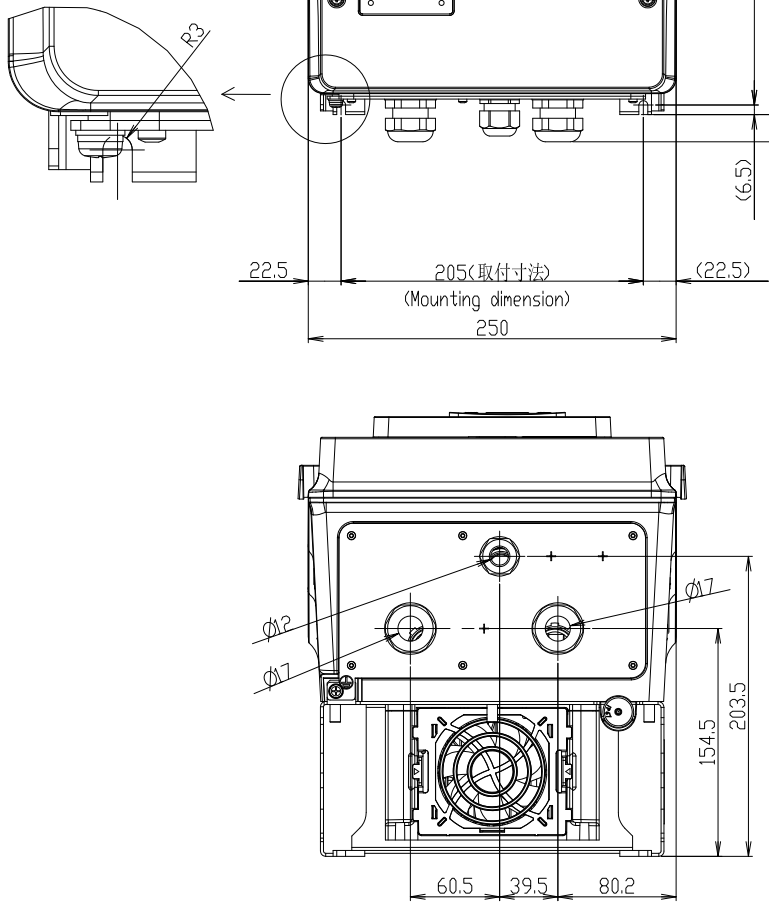
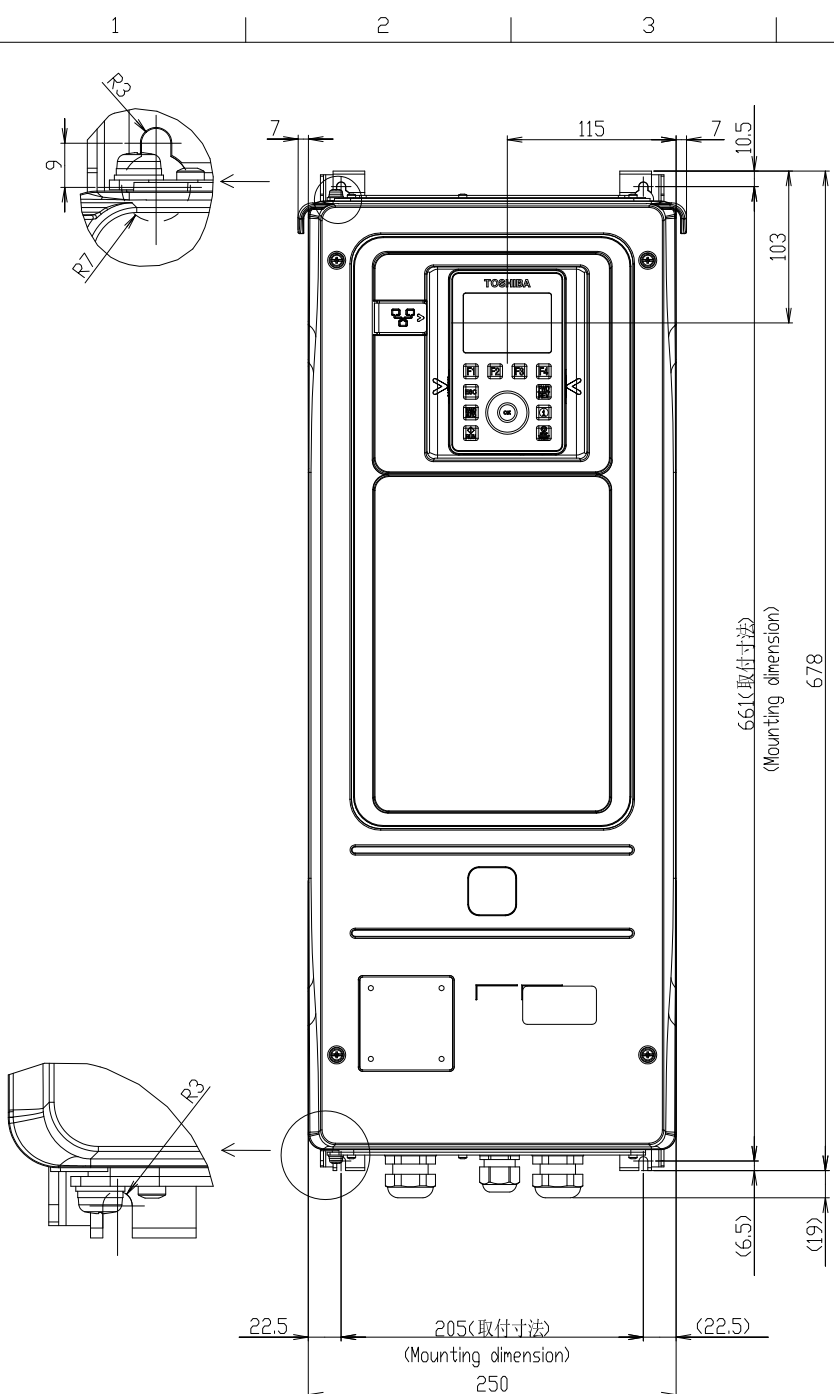
Power supply

- 240 V class: Three-phase 200 - 240 V-50/60 Hz
- 0.4 - 37 kW
- 480 V class: Three-phase 380 - 480 V-50/60 Hz
- 0.4 - 75kW



- \*1 EMC filter is built in 480 V class.
- \*2 External braking resistor (option).
- \*3 To supply DC power, connect it to the terminals [PA/+] and [PC/-].
- \*4 When your inverter is VFAS3-2110P to VFAS3-2370P or VFAS3-4220PC to VFAS3-4750PC with DC power supply, a circuit to suppress an inrush current is required. For detail, refer to application manual "DC power supply connect to inverter" (E6582156).
- \*5 For the switch function, refer to [2. 3. 5].
- \*6 To supply control power from an external power supply for backing up the control power supplied from the inverter, an optional control power supply unit (CPS002Z) is required. In this case, it is used in conjunction with the inverter internal power supply. Set <F647: Control power option failure detection> to back up the control power supply. For details, refer to [6. 30. 20].
- \*7 The reset signal is activated by ON→OFF trigger input.
- \*8 Connect to power to comply with OVC2 (Over Voltage Category 2). Isolation transformer is necessary when connecting to power supply (OVC3).

図面番DRAWING NO.  
P6583056  
変更記号REV.MARK



形式 Inverter model	概略質量(kg) Approx. mass
VFAS3-4055PCE	16.0
VFAS3-4075PCE	16.3

本体色: RAL7016(Dark grey)  
Box color: RAL7016(Dark grey)

INVERTER	VFAS3	4055PCE,4075PCE
器具名称 APPARATUS	形 TYPE	式 FORM
承認APPROVED BY I.Ichiro	検査CHECKED BY M.Takeuchi	名称TITLE
承認APPROVED BY S.Oi	検査CHECKED BY S.Oi	インバータ外形図 OUTLINE OF INVERTER
記事CONTENTS	製造DRAWN BY S.Oi	TOSVERT VF-AS3 SERIES
変更REVISIONS	単位UNITS	図面番DRAWING NO. P6583056

**TOSHIBA** 東芝シュネーデルインバータ株式会社  
Toshiba Schneider Inverter Corporation

図面番DRAWING NO. P6583056  
変更記号REV.MARK  
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